2021

ZOOLOGY — HONOURS

Paper : CC-7

Full Marks : 50

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer ***any ten*** questions.

1. (a) Differentiate between purines and pyrimidines.

(b) Elucidate the role of temperature on enzyme activity. 2+3

2. (a) Describe oxidative deamination with example.

(b) Name two inhibitors of the respiratory chain and cite their respective locations. 3+2

3. (a) State the roles of the following enzymes in carbohydrate metabolism :

(i) Glucose-6-phosphate dehydrogenase

(ii) Aldolase.

(b) What are sphingolipids? Cite two examples. (1½+1½)+2

4. (a) Differentiate between competitive and non-competitive enzyme inhibition.

(b) Define glucogenic and ketogenic acids with examples. 3+2

5. (a) What happens when [S] = Km and [S] < Km?

(b) What is isoelectric pH? (2+2)+1

6. (a) 'Amino acids are zwitterions' — Explain.

(b) How is a peptide bond formed? 3+2

7. Discuss (with a flowchart) the process of β-oxidation of palmitic acid mentioning the enzymes and cofactors. 5

8. (a) What is oxidative phosphorylation? How does it differ from substrate level phosphorylation?

(b) What is a non-reducing sugar? (2+1)+2

9. (a) Why pentose phosphate pathway is known as hexose monophosphate shunt?

(b) Define E.C. number with an example.

(c) What is an isoenzyme? 2+2+1

10. (a) Name the components of fatty acid synthase.

(b) What is Lineweaver–Burk plot? State its significance. 2+(2+1)

11. (a) Differentiate between saturated and unsaturated fatty acids giving examples of each.

(b) What are steroids? (3+1)+1

12. Briefly describe the urea cycle and mention its biological significance. 4+1

13. (a) Mention *two* rate limiting enzymes of gluconeogenesis and state the reactions they catalyze.

(b) What are cofactors? (2+2)+1

14. Schematically represent citric acid cycle (structures not required). 5

15. What are monosaccharides? Briefly write about *any two* types of isomerism of monosaccharides. 1+4
